

WE CLAIM:

1. A system for detecting a lining of a container closure that is formed of a sheet metal and has a panel on an inside surface of the closure, said panel having a lining formed thereon, said system comprising:
 - 5 a conveyor for moving said plural closures longitudinally therealong, said conveyor having a conveying surface that supports an outside surface of said closures; a color sensor that senses said panel of each one of said closures on said conveyor for a predetermined color, said color sensor being capable of identifying a sufficient color status that corresponds to said predetermined color and to a sufficient lining and a 10 deficient color status that corresponds to an insufficient lining; and a separator capable of removing from said conveyor closures having a deficient color status, whereby said system automatically identifies and removes said closures that have said deficient color from the conveyor.
- 15 2. The system of claim 1 further comprising an oven for baking said lining, said conveyor moving said closures into said oven.
3. The system of claim 1 further comprising a compound machine that sprays a compound on said panel, said compound forming said lining after curing, said color sensor disposed between said compound machine and said oven.
- 20 4. The system of claim 3 wherein said compound comprises a plastisol.
5. The system of claim 4 wherein said closures are heated in said oven to cure said plastisol.
6. The system of claim 5 wherein said oven heats said closures to approximately 380 degrees to 400 degrees Fahrenheit.

7. The system of claim 1 wherein said color sensor senses a predetermined wavelength of light to identify the sufficient color status.
8. The system of claim 1 wherein the separator comprises a compressed air jet that blows said closures having the deficient color status from said conveyor.
- 5 9. The system of claim 1 wherein said color sensor is directed to said conveyor surface.
10. A method for identifying container closures having a deficient color status from container closures having a sufficient color status, said method comprising the steps of:
 - (a) forming a compound on an inside panel surface on substantially each one of said closures in a compound station;
 - (b) conveying said closures from said compound station to a color sensor on a conveyor;
 - (c) sensing a color of substantially each one of the closures by said color sensor;
 - (d) identifying the color as either a sufficient color or a deficient color, the deficient color status corresponding to a predetermined color of said panel surface substantially lacking the compound at a predetermined portion of the panel; and
 - (e) automatically separating the closures having the deficient color status from the closures having the sufficient color status.
- 15 11. The method of claim 10 wherein the sufficient color status corresponds to a closure that lacks the predetermined color, whereby the color status changes from the predetermined color to the sufficient color upon the forming step (a).
- 20 12. The method of claim 11 wherein the forming step (a) comprises spraying a compound on the inside panel surface.
13. The method of claim 12 further comprising the step of heat curing the compound after the identifying step (d).

14. The method of claim 13 wherein said separating step (e) is prior to said heat curing step.
15. The method of claim 12 wherein said compound of said spraying step (a) comprises a plastisol that forms a lining on an inside surface of each one of the container closures.
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16. The method of claim 12 wherein said identifying step (d) includes comparing the color of each one of the closures to a predetermined color to determine whether the color is a sufficient color.
17. The method of claim 16 wherein comparing the color of each one of the closures to a predetermined color includes comparing the color of each one of the closures to a range of predetermined colors.
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18. The method of claim 17 wherein comparing the color of each one of the closures to a predetermined color includes comparing a wavelength of the color to a predetermined range of wavelengths.
- 15 19. The method of claim 12 wherein said separating step (e) includes blowing the closures having a deficient color from the conveyor.
20. The method of claim 12 wherein said conveying step (b) positions the closures single file on said conveyor.
21. The method of claim 12 wherein each one of the closures have a metallic color prior to the spraying step (a), said compound having an whitish and opaque color on said closure after the spraying step (a).
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22. A system for detecting a predetermined color of decorated metal disks that are capable of being formed into container closures, said system comprising:
a conveyor for moving said plural decorated metal disks longitudinally therealong, said decorated metal disks having a colored side that is oriented upwardly on said conveyor;

5 a color sensor that senses said the colored side of substantially each one of said decorated metal disks for a predetermined color, said color sensor being capable of identifying a sufficient color status that corresponds to a predetermined color on at least a portion of said decorated metal disk and a deficient color status that corresponds to a color that is not said predetermined color; and

10 a separator capable of removing from said conveyor a decorated metal disk having a deficient color status;
whereby said system automatically identifies and removes said decorated metal closures that have said deficient color from the conveyor.

15 23. The system of claim 22 wherein said system further comprises a lithography station that print colors on said colored side of said decorated metal disk.

24. The system of claim 22 wherein said separator comprises a compressed air jet that blows said decorated metal disks having the deficient color status from said conveyor.

20 25. The system of claim 1 wherein said color sensor senses a predetermined wavelength of light to identify the sufficient color status.

26. A method for identifying a predetermined color of decorated metal disks that are capable of being formed into container closures, said method comprising the steps of:
25 (a) conveying the decorated metal disks to a color sensor on a conveyor;
(b) sensing a color of each one of the decorated metal disks by said color sensor;

(c) identifying the color as either a sufficient color or a deficient color, the sufficient corresponding to a predetermined color, the deficient color corresponding to another color that is not the predetermined color; and

(d) automatically separating the decorated metal disks having the deficient color status from the closures having the sufficient color status.

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27. The method of claim 26 further comprising the step of printing at least one color onto substantially each one of the decorated metal disks in a printing station.

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28. The method of claim 27 wherein the step of printing at least one color includes lithographically printing the at least one color onto substantially each one of the decorated metal disks in the printing station.

29. The method of claim 26 wherein the predetermined color corresponds to a desired color for the decorated metal disk, whereby the desired color is determined according to the trade dress or desired decoration of a product for which the decorated metal disk is intended.

15 30. The method of claim 26 wherein said identifying step (c) includes comparing the color of each one of the decorated metal disks to the predetermined color to determine whether the color is the sufficient color.

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31. The method of claim 30 wherein comparing the color of each one of the decorated metal disks to the predetermined color includes comparing the color of each one of the decorated metal disks to a range of predetermined colors.

32. The method of claim 31 wherein comparing the color of each one of the decorated metal disks to the predetermined color includes comparing a wavelength of the color to a predetermined range of wavelengths.

33. The method of claim 12 wherein said separating step (d) includes blowing the decorated metal disks having the deficient color from the conveyor.